

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
13 January 2005 (13.01.2005)

PCT

(10) International Publication Number
WO 2005/003546 A1

(51) International Patent Classification⁷: **F02M 27/02**,
31/08, F01N 5/02, F02G 5/02, B01D 19/00, C10G 7/00,
31/00

(21) International Application Number:
PCT/JP2004/008657

(22) International Filing Date: 14 June 2004 (14.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2003-189799 1 July 2003 (01.07.2003) JP
2003-324748 17 September 2003 (17.09.2003) JP

(71) Applicant (for all designated States except US): **TOYOTA JIDOSHA KABUSHIKI KAISHA** [JP/JP]; 1, Toyota-cho, Toyota-shi, Aichi 471-8571 (JP).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **UEDA, Takanori** [JP/JP]; c/o Toyota Jidosha Kabushiki Kaisha, 1, Toyota-cho, Toyota-shi, Aichi 471-8571 (JP). **HIROTA, Shinya**

[JP/JP]; c/o Toyota Jidosha Kabushiki Kaisha, 1, Toyota-cho, Toyota-shi, Aichi 471-8571 (JP).

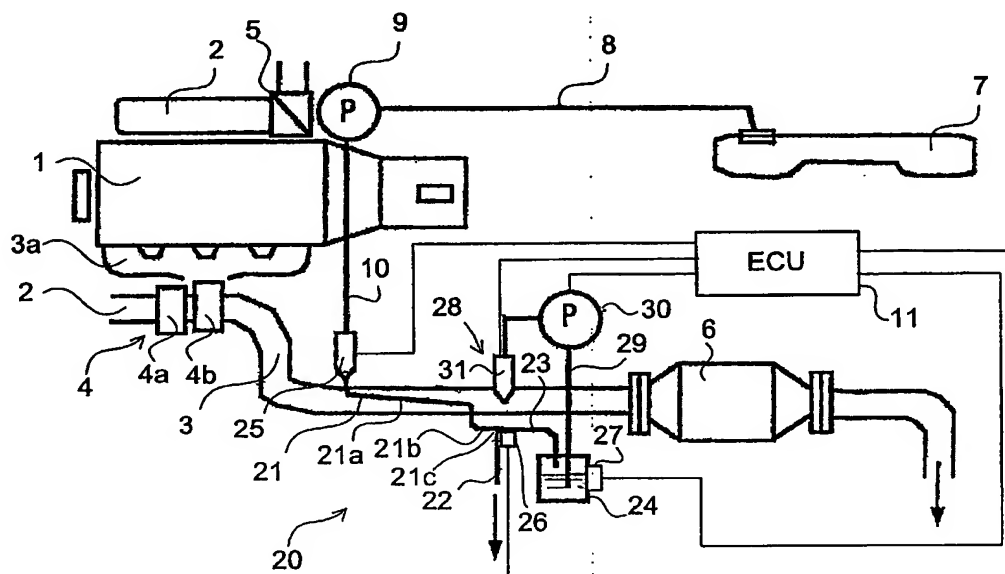
(74) Agents: **YAMAMOTO, Koji** et al.; c/o Tokyo Central Patent Firm, 4th Floor, Oak Building Kyobashi, 16-10, Kyobashi 1-chome, Chuou-ku, Tokyo 104-0031 (JP).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: FUEL FRACTIONATION METHOD AND FUEL FRACTIONATION APPARATUS FOR INTERNAL COMBUSTION ENGINE



(57) Abstract: A fuel fractionation method which can suitably control a state of a fuel at a time of fractionating the fuel in an internal combustion engine, which comprises the steps of applying an operation for promoting a fractionation of a fuel of an engine (1) to a fractionation passage (21) while making the fuel flow to the fractionation passage (21), thereby fractionating the fuel into a gas phase fuel and a liquid phase fuel within the fractionation passage (21), conducting the fractionated gas phase fuel and the fractionated liquid phase fuel to a branch point (21c) of the fractionation passage (21), and separating the gas phase fuel and the liquid phase fuel to a gas phase passage (23) and a liquid phase passage (22), respectively due to gravity.



Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.